

CHAPTER 5.0: WATER SERVICE RELIABILITY

5.1 NORMAL YEAR SUPPLY AND DEMAND COMPARISON

5.1.1 Normal Year Supply Projection

In Chapter 3: Water Supply System and Chapter 4: Past, Current, and Projected Water Demands, the water supply and demand calculations, including projections, were completed for the Yorba Linda Water District. Listed below is a summary of the projected supply between the years 2010 and 2030. Also included is the percentage of the supply during the year 2005 that will be supplied during subsequent years.

Table 5.1 – 1: Projected Normal Water Supply (AFY)					
	2010	2015	2020	2025	2030
Supply	26,039	26,838	27,317	27,537	27,680
% of year 2005	106%	109%	111%	112%	112%

5.1.2 Normal Year Demand Projection

Listed in Table 5.1–2: Projected Normal Water Demand (AFY) are similar values for the demand projections. The provided figures are based on those determined in Chapter 4: Past, Current, and Projected Water Demands.

Table 5.1 – 2: Projected Normal Water Demand (AFY)					
	2010	2015	2020	2025	2030
Demand	26,039	26,838	27,317	27,537	27,680
% of year 2005	106%	109%	111%	112%	112%

5.1.3 Normal Year Supply and Demand Comparison

A comparison of the projected supply and demand for a normal (non-drought) year is summarized below in Table 5.1–3: Projected Supply and Demand Comparison (AFY). The table demonstrates that the projected supply will be sufficient to meet the projected demand during a normal year.

Table 5.1 – 3: Projected Supply and Demand Comparison (AFY)					
	2010	2015	2020	2025	2030
Supply Totals	26,039	26,838	27,317	27,537	27,680
Demand Totals	26,039	26,838	27,317	27,537	27,680
Difference	0	0	0	0	0
Difference as % of Supply	0%	0%	0%	0%	0%
Difference as % of Demand	0%	0%	0%	0%	0%

5.2 SINGLE-DRY YEAR SUPPLY AND DEMAND COMPARISON

5.2.1 Single-Dry Year Supply Projection

In the event of a drought or dry year, the supply and demand will deviate from the normal year. Provided below are projections for the supply during a single-dry year based upon local hydrology during the historical driest year, 1961.

Table 5.2 – 1: Projected Single-Dry Year Water Supply (AFY)					
	2010	2015	2020	2025	2030
MWDOC	14,682	13,239	13,128	13,224	13,604
OCWD (Lower Santa Ana Basin)	12,807	15,094	15,709	15,847	15,617
Supply Totals	27,489	28,333	28,838	29,071	29,221
% of projected normal	105.6%	105.6%	105.6%	105.6%	105.6%

5.2.2 Single-Dry Year Demand Projection

Table 5.2–2: Projected Single-Dry Year Water Demand (AFY) below demonstrates the water demand in AFY projected for a single-dry year between 2010 and 2030. Also provided are values for the percentage of the projected normal demand that will be used during a single-dry year.

Table 5.2 – 2: Projected Single-Dry Year Water Demand (AFY)					
	2010	2015	2020	2025	2030
Demand	27,489	28,333	28,838	29,071	29,221
% of projected normal	105.6%	105.6%	105.6%	105.6%	105.6%

5.2.3 Single–Dry Year Supply and Demand Comparison

Table 5.2–3: Projected Single–Dry Year Supply and Demand Comparison (AFY) provides a comparison between the projected supply and demand during a single–dry year between the years 2010 and 2030. The table demonstrates that the projected supply will be sufficient to meet the projected demand during a single–dry year.

Table 5.2 – 3: Projected Single–Dry Year Supply and Demand Comparison (AFY)					
	2010	2015	2020	2025	2030
Supply Totals	27,489	28,333	28,838	29,071	29,221
Demand Totals	27,489	28,333	28,838	29,071	29,221
Difference	0	0	0	0	0
Difference as % of Supply	0.0%	0.0%	0.0%	0.0%	0.0%
Difference as % of Demand	0.0%	0.0%	0.0%	0.0%	0.0%

5.3 MULTIPLE-DRY YEAR SUPPLY AND DEMAND COMPARISON

In the event of a multiple-dry year period, the supply will decrease and the demand will increase due to dry conditions. In dry water years, the amount of water that YLWD extracts from the Lower Santa Ana Basin is expected to decrease. In addition, increased demand and decreased supply during these dry-water years will require YLWD to purchase additional water from MWDOC to compensate for the decreased local supply and increased residential demand. MWDOC has supplied projections for the amount of water that is projected to be available to YLWD during multiple-dry years occurring between the years of 2010 and 2030. The projections are provided for 3 consecutive-year periods of time, and based upon local hydrology during the driest historic 3 consecutive-years, 1959 to 1961. The following tables demonstrate that the available supply will meet the projected demand.

5.3.1 Multiple-Dry Year Period Ending in 2010

Table 5.3 – 1: Projected Supply during Multiple-Dry Year Period Ending in 2010 (AFY)			
	2008	2009	2010
Normal Supply			
MWDOC	14,721	14,837	14,759
OCWD (Lower Santa Ana Basin)	10,796	10,976	11,280
Supply Totals	25,517	25,813	26,039
Multiple-Dry Year Supply			
MWDOC	15,709	15,052	14,682
OCWD (Lower Santa Ana Basin)	11,520	11,721	12,807
Supply Totals	27,230	26,773	27,489
% of projected normal	106.7%	103.7%	105.6%

Table 5.3 – 2: Projected Demand during Multiple–Dry Year Period Ending in 2010 (AFY)

	2008	2009	2010
Normal Demand			
Total Demand	25,517	25,813	26,039
Multiple–Dry Year Demand			
Total Demand	27,230	26,773	27,489
% of projected normal	106.7%	103.7%	105.6%

Table 5.3 – 3: Projected Supply and Demand Comparison during Multiple–Dry Year Period Ending in 2010 (AFY)

	2008	2009	2010
Supply Totals	27,230	26,773	27,489
Demand Totals	27,230	26,773	27,489
Difference	0	0	0
Difference as % of Supply	0.0%	0.0%	0.0%
Difference as % of Demand	0.0%	0.0%	0.0%

5.3.2 Multiple–Dry Year Period Ending in 2015

Table 5.3 – 4: Projected Supply during Multiple–Dry Year Period Ending in 2015 (AFY)			
	2013	2014	2015
Normal Supply			
MWDOC	14,281	14,401	14,444
OCWD (Lower Santa Ana Basin)	12,259	12,305	12,394
Supply Totals	26,540	26,707	26,838
Multiple–Dry Year Supply			
MWDOC	13,612	13,053	13,239
OCWD (Lower Santa Ana Basin)	14,709	14,646	15,094
Supply Totals	28,321	27,699	28,333
% of projected normal	106.7%	103.7%	105.6%

Table 5.3 – 5: Projected Demand during Multiple–Dry Year Period Ending in 2015 (AFY)			
	2013	2014	2015
Normal Demand			
Total Demand	26,540	26,707	26,838
Multiple–Dry Year Demand			
Total Demand	28,321	27,699	28,333
% of projected normal	106.7%	103.7%	105.6%

Table 5.3 – 6: Projected Supply and Demand Comparison during Multiple–Dry Year Period Ending in 2015 (AFY)

	2013	2014	2015
Supply Totals	28,321	27,699	28,333
Demand Totals	28,321	27,699	28,333
Difference	0	0	0
Difference as % of Supply	0.0%	0.0%	0.0%
Difference as % of Demand	0.0%	0.0%	0.0%

5.3.3 Multiple–Dry Year Period Ending in 2020

Table 5.3 – 7: Projected Supply during Multiple–Dry Year Period Ending in 2020 (AFY)			
	2018	2019	2020
Normal Supply			
MWDOC	14,506	14,558	14,623
OCWD (Lower Santa Ana Basin)	12,638	12,687	12,694
Supply Totals	27,144	27,245	27,317
Multiple – Dry Year Supply			
MWDOC	13,381	12,856	13,128
OCWD (Lower Santa Ana Basin)	15,584	15,402	15,709
Supply Totals	28,965	28,258	28,838
% of projected normal	106.7%	103.7%	105.6%

Table 5.3 – 8: Projected Demand during Multiple–Dry Year Period Ending in 2020 (AFY)			
	2018	2019	2020
Normal Demand			
Total Demand	27,144	27,245	27,317
Multiple–Dry Year Demand			
Total Demand	28,965	28,258	28,838
% of projected normal	106.7%	103.7%	105.6%

Table 5.3 – 9: Projected Supply and Demand Comparison during Multiple–Dry Year Period Ending in 2020 (AFY)

	2018	2019	2020
Supply Totals	28,965	28,258	28,838
Demand Totals	28,965	28,258	28,838
Difference	0	0	0
Difference as % of Supply	0.0%	0.0%	0.0%
Difference as % of Demand	0.0%	0.0%	0.0%

5.3.4 Multiple–Dry Year Period Ending in 2025

Table 5.3 – 10: Projected Supply during Multiple–Dry Year Period Ending in 2025 (AFY)			
	2023	2024	2025
Normal Supply			
MWDOC	14,796	14,861	14,919
OCWD (Lower Santa Ana Basin)	12,658	12,638	12,619
Supply Totals	27,454	27,499	27,537
Multiple–Dry Year Supply			
MWDOC	14,047	12,923	13,224
OCWD (Lower Santa Ana Basin)	15,249	15,599	15,847
Supply Totals	29,296	28,521	29,071
% of projected normal	106.7%	103.7%	105.6%

Table 5.3 – 11: Projected Demand during Multiple–Dry Year Period Ending in 2025 (AFY)			
	2023	2024	2025
Normal Demand			
Total Demand	27,454	27,499	27,537
Multiple–Dry Year Demand			
Total Demand	29,296	28,521	29,071
% of projected normal	106.7%	103.7%	105.6%

Table 5.3 – 12: Projected Supply and Demand Comparison during Multiple–Dry Year Period Ending in 2025 (AFY)

	2023	2024	2025
Supply Totals	29,296	28,521	29,071
Demand Totals	29,296	28,521	29,071
Difference	0	0	0
Difference as % of Supply	0.0%	0.0%	0.0%
Difference as % of Demand	0.0%	0.0%	0.0%

5.3.5 Multiple – Dry Year Period Ending in 2030

Table 5.3 – 13: Projected Supply during Multiple–Dry Year Period Ending in 2030 (AFY)			
	2028	2029	2030
Normal Supply			
MWDOC	15,057	15,102	15,134
OCWD (Lower Santa Ana Basin)	12,577	12,563	12,546
Supply Totals	27,633	27,665	27,680
Multiple–Dry Year Supply			
MWDOC	14,708	13,261	13,604
OCWD (Lower Santa Ana Basin)	14,779	15,432	15,617
Supply Totals	29,487	28,694	29,221
% of projected normal	106.7%	103.7%	105.6%

Table 5.3 – 14: Projected Demand during Multiple–Dry Year Period Ending in 2030 (AFY)			
	2028	2029	2030
Normal Demand			
Total Demand	27,633	27,665	27,680
Multiple–Dry Year Demand			
Total Demand	29,487	28,694	29,221
% of projected normal	106.7%	103.7%	105.6%

Table 5.3 – 15: Projected Supply and Demand Comparison during Multiple–Dry Year Period Ending in 2030 (AFY)

	2028	2029	2030
Supply Totals	29,487	28,694	29,221
Demand Totals	29,487	28,694	29,221
Difference	0	0	0
Difference as % of Supply	0.0%	0.0%	0.0%
Difference as % of Demand	0.0%	0.0%	0.0%